

## CLIMATOLOGICAL DATA FOR MAY, 1912.

## DISTRICT No. 4, THE LAKE REGION.

Prof. HENRY J. COX, District Editor.

## GENERAL SUMMARY.

In the Lake region the month was marked by practically no sudden and extreme changes in temperature, both daily and mean departures being generally small. There was an abundance of precipitation in most portions of the district, and in many localities south and east of the lake chain the falls were so frequent as to interfere seriously with the progress of work in the field. The amount of sunshine varied considerably over the region, stations along the lake shores of Wisconsin and New York, reporting deficiencies of from 4 to 16 per cent, while in sections of Upper Michigan, Ohio, and Pennsylvania, excesses of from 6 to 13 per cent occurred. Gales were reported on comparatively few days, but thunderstorms, some of which occasioned more or less damage of a local nature, were frequent in all portions of the district throughout the course of the month.

The following table presents the chief features of meteorological interest in the various portions of the district:

Portions of States.	Mean temperature.	Departure.	Mean daily range.	Mean precipitation.	Departure.	Greatest precipitation in 24 hours.	Mean snowfall.	Number of days—			Prevailing wind direction.
								With 0.01 inch or more.	Clear.	Partly cloudy.	
Minnesota.....	49.5	-0.2	15.3	5.12	+1.91	1.68	T.	15	7	16	ne.
Wisconsin.....	53.9	+0.8	18.0	6.03	+2.71	2.66	T.	13	9	11	ne.
Illinois.....	59.9	+3.4	17.6	3.97	+0.60	1.66	0	15	13	8	s.
Indiana.....	61.2	+2.1	21.2	4.39	+0.17	1.89	0.1	13	15	7	sw.
Upper Michigan.....	50.4	+1.5	18.5	3.49	+0.23	2.95	0	10	11	8	e.
Lower Michigan.....	56.6	+1.3	19.3	5.93	+2.82	5.00	0.2	13	11	10	sw.
Ohio.....	57.7	+2.1	19.1	2.74	-0.95	1.54	0.2	10	14	10	7 sw.
Pennsylvania.....	58.5	+1.2	18.2	3.29	-0.14	1.46	T.	14	8	14	w.
New York.....	56.0	+1.1	19.3	6.09	+1.71	2.86	0.6	14	11	10	w.
Vermont.....	54.8	-0.4	20.4	6.41	+3.29	2.01	0.6	10	7	10	s.

## TEMPERATURE.

Except in the Minnesota and Vermont sections, where there were deficiencies of less than one-half degree, the mean temperature of the month was above normal over the district, the departures, however, being generally small, and reaching as much as +2.1° only in northern Indiana and northern Ohio. Moreover, the daily departures were, as a rule, remarkably small, exceeding ±12° in but few instances, even at the culmination of the warm and cool spells.

Comparatively low temperatures occurred in the extreme eastern sections on the first few days of the month, and numerous frosts were reported. Elsewhere in the district moderate warmth prevailed throughout the first decade, but a period of cool weather followed, which

lasted from the 11th to the 22d. The lowest temperatures of the month were recorded generally during the 12th-14th, and light to heavy frosts occurred on these dates at many stations over the entire Lake region. After the 22d warm weather was general until the 29th, the highest readings being observed at most stations on the 23d, although in Vermont the time of greatest heat did not occur until the 28th. The month closed with temperatures generally below normal, and frosts were reported in the extreme northwestern sections on the last three days.

The absolute range in temperature for the district was 76°, from 92° at Bay City, Mich., on the 24th, to 16° at Onaway, Mich., on the 29th.

## PRECIPITATION.

With the exception of a slight deficiency over the Ohio and Pennsylvania portions, precipitation occurred in excess of the May normal, the monthly amounts being very heavy over the Minnesota, Wisconsin, Lower Michigan, New York, and Vermont sections. In point of time, rain was frequent during the entire month, but was most pronounced during the 11th-24th, 27th-30th, and in the northwestern portions during the 1st-8th. In many places to the east of the lower lakes the frequent rains of the last two decades raised the streams and ponds greatly, but, because of the excellent drainage in the areas affected, little, if any, damage resulted. The rivers of the Lower Michigan peninsula were swollen by the heavy rains of the 11th-22d, especially in the valleys of the Grand and Saginaw. A description of the conditions in these valleys is given in a separate article.

Snow occurred at a number of stations on the 13th in the southeastern portion of Lower Michigan, in portions of New York and Vermont, and at a few stations in other sections of the district, but the amounts were generally very light. In the Upper Peninsula of Michigan no snow was reported from any station during the month, while at Blue Mountain Lake, N. Y., the monthly fall reached the remarkable depth of 18 inches.

## MISCELLANEOUS.

*Severe storms.*—As stated above, thunderstorms were frequent during May, and caused some damage in several instances. On the afternoon of the 20th a number of severe local storms occurred in the southern and western parts of Calhoun County, Mich., regarding the most damaging of which Mr. F. H. Coleman, of the Weather Bureau, reports:

At a point about 1 mile east of East Leroy a tornado occurred at 4.25 p. m. The usual funnel-shaped cloud was visible, and the path of greatest destruction was about 40 rods wide. Barns were destroyed on the farms of J. C. Record and David Macher, and some live stock was killed. At the beginning the storm moved from the northwest toward

the southeast, but it soon changed to a northeasterly direction and moved into the adjoining township, where barns were destroyed on three farms. The total loss is estimated at \$50,000. No persons were injured.

**Seiches.**—Violent barometric fluctuations were noted at Grand Haven, Mich., on the 19th and 20th, and seiches were reported along the lake shore and in the river at that place, but exact times and measurements could not be obtained. Similar conditions prevailed at Alpena, Mich., on the 22d and 23d, where fluctuations of water level of from 8 to 15 inches occurred.

**Dense fog** was reported over the northwestern sections of the district on several days during the first week of the month, and at a number of stations throughout the Lake region during the last decade.

**Hail** occurred at a few stations, chiefly in the western portions of the district.

#### MAY, 1912, LAKE LEVELS.

The following data are from the report of the United States Lake Survey Office:

Lakes.	Feet above tidewater, New York.
Superior.....	602.00
Michigan-Huron.....	579.93
Erie.....	572.54
Ontario.....	246.82

Lake Superior is 0.54 foot higher than last month, 1.18 feet higher than a year ago, 0.07 foot below the average stage for May of the last 10 years, 1.05 feet below the high stage of May, 1861, and 1.18 feet above the low stage of May, 1911. It will probably rise 0.3 foot during June.

Lakes Michigan-Huron are 0.49 foot higher than last month, 0.23 foot higher than a year ago, 0.81 foot below the average stage for May of the last 10 years, 3.59 feet below the high stage of May, 1886, and 0.37 foot above the low stage of May, 1896. They will probably rise 0.3 foot during June.

Lake Erie is 0.29 foot higher than last month, 0.66 foot higher than a year ago, 0.15 foot lower than the average stage for May of the last 10 years, 1.88 feet below the high stage of May, 1862, and 1.23 feet above the low stage of May, 1901. It will probably rise 0.2 foot during June.

Lake Ontario is 0.50 foot higher than last month, 1.22 feet higher than a year ago, 0.12 foot higher than the average stage for May of the last 10 years, 2.13 feet below the high stage of May, 1870, and 1.86 feet above the low stage of May, 1872. It will probably rise 0.1 foot during June.

#### MAY, 1912, FLOOD IN MICHIGAN.

F. H. Coleman, Acting Section Director.

**Grand River.**—During the period May 11 to 22, inclusive, rains occurred nearly every day throughout the watershed of Grand River, the precipitation being heaviest in the middle and upper portions. The river rose slowly until the 22d, when it began to rise quite rapidly in the lower stretches as a result of heavy rains during the preceding two days. From Ionia to Grand Rapids the stages were much above normal, but at stations above Ionia the river was only moderately high.

The river service was put in operation May 23, and warnings issued for flood stages at Lowell and Grand Rapids by the night of the 24th or during the 25th. The water continued to rise at Grand Rapids until the morning of the 25th, when the crest of the flood occurred, the highest reading being 10 feet.

The city authorities were notified of the impending high water and put the sewer pumps in operation, so that there was practically no damage from water in the basements subject to flooding at the stage reached.

**Saginaw River.**—Very heavy precipitation occurred over nearly all the Saginaw watershed from May 11 to 22, inclusive. Some of the amounts that occurred during this period are as follows:

Alma.....	5.83	Harrison .....	6.88
Arbela.....	8.67	Owosso.....	8.13
East Tawas.....	9.40	Saginaw.....	6.86
Gladwin.....	11.50	Vassar.....	7.72

The continued precipitation during this period caused a steady but slow rise in all the tributaries of the Saginaw River until the 20th and 21st, when heavy rains caused a much more rapid rise in the Flint and Cass Rivers and torrential downpours over the upper portion of the Tittibawassee started a very alarming rise in that stream.

All gaging stations were notified to begin observations at 6 p. m. May 21, and warnings were at once issued that a river stage at Saginaw as high as that prevailing during April might be expected within the next two days. The water continued to rise at Midland until the night of the 22d, when it reached the highest point ever observed at that place, 22.9 feet. On the 22d warnings were issued to prepare for a 24-foot stage at Saginaw, which would be reached by midnight of the 24th. The crest of the flood passed Saginaw during the 24th, its highest stage being 24 feet.

The greatest damage occurred at Midland and Saginaw and in the territory comprising the watershed of the Tittibawassee River. The rise of this stream was so rapid that many families were compelled to flee from their homes during the night, and in some cases it was necessary to use boats to remove the people from the flood districts. Apparently the heaviest rainfall occurred in the region around Gladwin, at which point 7.20 inches were recorded during the 20th and 21st.

A considerable part of the city of Midland was flooded, and the water was about 8 feet deep at the point where the cooperative observing station is located. At Saginaw many of the basements were flooded and water appeared in the streets in the lower parts of the city. Much of the country surrounding Saginaw and extending down the river to Bay City was overflowed. The interurban line connecting the two cities was compelled to suspend operations for about a week. The railroads throughout the Saginaw district suffered great delay from washouts and in some places the tracks were under water.

There was considerable damage to agricultural interests in the lowlands and a considerable loss of live stock.

TABLE 1.—Climatological data for May, 1912. District No. 4, Lake Region.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Prevailing wind direction.	Observers.				
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmeasured.	Number of rainy days, 0.01 inch or more.	Number of partly cloudy days.	Number of cloudy days.				
<i>Minnesota.</i>																					
Cloquet.	Carlton.	800	1	49.4	-	82	26	25	12	49	4.52	+ 2.43	0.95	T.	13	3	19	9	e.	Walter McDonald.	
Duluth.	St. Louis.	1,133	41	46.8	- 1.8	74	23	32	13	34	5.90	+ 2.43	1.68	T.	19	4	12	15	ne.	U. S. Weather Bureau.	
Floodwood.	do.	1,257	6																	M. H. Schussler.	
Stephens Mine.	do.	1,500	5	51.7		81	27	24	14	46	4.87		1.00	T.	15	14	14	3	w.	Oliver Iron Mining Co.	
Two Harbors.	Lake.	614	18	47.0	- 0.6	77	24†	28	8	34	5.51	+ 2.07	0.80	T.	16	0	22	9	ne.	G. W. Watts.	
Virginia.	St. Louis.	1,434	18	52.4	+ 1.8	80	26†	28	16	44	4.81	+ 1.22	1.03	T.	13	12	12	7	nw.	Oliver Iron Mining Co.	
<i>Wisconsin.</i>																					
Appleton.	Outagamie.	795	11	57.4	+ 2.8	84	23	34	13†	35	4.94	+ 1.41	1.07	0	13	17	7	7	e.	Wm. O. Thiede.	
Ashland.	Ashland.	647	21	51.0	+ 0.5	82	26	31	16	41	5.34	+ 2.04	0.90	0	11	10	8	13	e.	Sam Wheeler.	
Bayfield.	Bayfield.	635	3	49.8	-	76	10	22†	5	40	4.02		2.00	0	8	14*	0	16*	ne.	F. Kern.	
Cecil.	Shawano.	804	14	55.3	+ 1.5	82	23	30	14†	44	4.40	+ 1.43	0.77	T.	16	1	18	12	sw.	Louis W. Schmidt.	
Cornucopia.	Bayfield.	0	49.2			79	26	26	12	41	4.06		0.98		12	8	12	7	ne.	Reed Fruit Co.	
Crandon.	Forest.	1,060	17	53.2	+ 0.7	80	23	28	13†	37	5.57	+ 3.17	1.55	0	12	8	15	se.	Frank Shoemaker.		
Florence.	Fond du Lac.	1,293	21	52.8	+ 1.8	83	23	28	14†	44	4.74	+ 0.98	1.29	0	10	16	3	12	e.	Fred S. Evans.	
Fond du Lac.	Fond du Lac.	800	26	57.7	+ 1.6	85	23	34	14	39	6.27	+ 3.03	1.91	0	14	16	8	7	w.	Edward A. Seeley.	
Grand River Locks.	Marquette.	770	16	58.2		84	27	33	14	37	8.25	+ 3.51	2.41	0	15	20	5	6	s.	Jerry Parkinson.	
Green Bay.	Brown.	617	26	55.0	+ 0.5	81	23	34	14	32	7.24	+ 3.67	1.68	0	15	3	12	16	sw.	U. S. Weather Bureau.	
High Falls.	Marinette.	810	0	54.8		85	23	24	14	46	3.19		0.62	0	9	3	20	8	sw.	No. Hydro-Electr. Power Co.	
Iron River.	Bayfield.	1,096	3	52.8		84	26†	27	16†	48	4.73		1.04	0	16	14	9	8	ne.	Winfield E. Tripp.	
Kewaunee.	Kewaunee.	590	3	50.0		79	24	34	13	30	8.10		1.85	0	15	8	7	16	s.	Fugene V. Kimball.	
Manitowoc.	Manitowoc.	616	61	52.2	0.0	80	23†	37	14	29	5.16	+ 2.40	1.40	0	12	5	14	14	s.	Johanna Lüps.	
Menasha.	Winnebago.	764	15								5.05	+ 2.10	1.54	0	12	18	5	8	sw.	Geo. T. Allanson.	
Menomonee Falls.	Waukesha.	842	3	56.4		85	23	33	13	37	9.94		1.51	0	18	19	5	7	ne.	Arthur H. Christman.	
Milwaukee.	Milwaukee.	681	41	54.8	+ 1.2	87	23	38	13	43	8.15	+ 4.73	1.96	0	16	7	13	11	ne.	U. S. Weather Bureau.	
New London.	Outagamie.	762	16	56.6	+ 0.7	82	23†	31	14	35	6.94	+ 2.85	1.92	0	11	14	5	12	ne.	August H. Pape.	
Oconto.	Oconto.	590	21	54.8	+ 0.7	84	23	32	13†	36	4.14	+ 0.54	0.70	0	14	7	12	12	sw.	Wm. K. Smith.	
Oshkosh.	Winnebago.	744	23	57.0	+ 0.4	85	23	30	14	37	5.75	+ 3.81	2.66	0	16	6	9	9	sw.	Evan Vincent.	
Pine River.	Waushara.	900	17	57.4	+ 0.8	84	23	32	13†	35	5.97	+ 1.99	1.13	0	14	8	16	7	ne.	Geo. H. Carpenter.	
Plum Island.	Door.	588	4	48.1		72	18	28	14	32	3.87		1.34	0	14	6	14	11	s.	Geo. C. Robinson.	
Plymouth.	Sheboygan.	843	2	55.5		82	23†	34	19	37	6.98		2.59	0	14	9	12	10	sw.	Paul O. Feldrappe.	
Port Washington.	Ozaukee.	713	19	52.8	+ 0.1	87	23	35	13	40	7.63	+ 3.86	1.32	0	14	8*	9*	13*	se.	Richard C. Kann.	
Racine.	Racine.	633	15	55.4	+ 0.4	88	23	34	13†	38	5.88	+ 3.01	1.77	0	16	9	11	11	se.	Daniel Davis.	
Ripon.	Fond du Lac.	935	2	58.5		82	23	32	14	32	7.22		1.98	0	12	12	6	13	w.	Ripon College.	
Sheboygan.	Sheboygan.	831	13	53.2	+ 0.7	86	23†	35	13	38	5.75	+ 3.98	2.50	0	13	9	14	8	se.	Louis C. Meyer.	
Sturgeon Bay.	Door.	600	13	49.8	+ 1.0	76	7	29	14	34	5.08		1.50	0	13	8	10	13	ne.	Adam N. Dier.	
Superior.	Douglas.	671	3	46.4		76	9†	30	7	40	5.75		1.55	0	19	5	15	11	ne.	Edward B. Banks.	
Waupaca.	Waupaca.	857	17	56.3	- 0.1	84	23	30	14	38	7.14	+ 3.00	2.00	0	11	9	13	9	sw.	James H. Flagg.	
<i>Illinois.</i>																					
Chicago.	Cook.	824	42	59.9	+ 3.4	88	23	39	12	49	3.97	+ 0.60	1.66	0	15	13	8	10	s.	U. S. Weather Bureau.	
Evanston.	do.	601	...	59.9		90	23	36	13	44	4.98	+ 1.47	1.11	0	16	12	6	13	...	City of Evanston.	
<i>Indiana.</i>																					
Auburn.	Dekalb.	874	16	60.4	+ 1.9	86	23	32	13	39	3.60	- 0.11	0.97	0	12	13	2	16	sw.	Mrs. Josie B. Kublman.	
Berne.	Adams.	849	3	63.2		89	27	33	13	35	2.95		0.66	0.7	12	18	8	5	sw.	Henry M. Reusser.	
Elkhart.	Elkhart.	801	10																	Dr. Miles Medical Co.	
Fort Wayne.	Allen.	856	16	62.3	+ 2.1	86	23	34	13	31	3.40	- 0.28	0.99	0	13	15	9	7	sw.	U. S. Weather Bureau.	
Hammond.	Lake.	598	21	60.3	+ 2.2	88	23	34	13	43	4.95	+ 0.91	1.65	0	11	7	13	11	...	Carson W. Whitney.	
Howe.	Lagrange.	886	7	60.2		85	23†	37	13	35	5.57		1.50	0	13	18	3	10	...	James E. Zook.	
Notre Dame.	St. Joseph.	712	1	60.8		86	23	37	12	30	5.35		1.89	0	16	10	12	9	sw.	U. S. Weather Bureau.	
Whiting.	Lake.	606	3	61.0		86	23†	36	13	39	4.94		1.57	0	15	20	4	7	sw.	D. H. Boyd.	
<i>Michigan—Upper Peninsula.</i>																					
Baraga.	Baraga.	623	10	49.6	+ 0.5	85	30	18	2†	37	2.10	- 1.85	0.40	0	10	15	0	16	w.	D., S. & A. Ry.	
Bergland.	Ontonagon.	1,300	2	52.8		85	31	25	14	52	6.11		1.80	0	10	9 <i>i</i>	0	13 <i>i</i>	...	Frank McMonigal.	
Blaney.	Schoolcraft.	4																		E. S. Grierson.	
Calumet.	Houghton.	1,246	24	48.4	+ 2.5	81	31	29	13	37	3.32	- 0.02	1.15	0	10	14	8	9	e.	Upper Peninsula Exp. Sta.	
Chatham.	Alger.	875	11	48.9	+ 1.7	79	26	21	14	41	3.71	+ 0.65	1.28	0	11	16	5	10	n.	Mrs. Sarah E. McGaw.	
Deer Park.	Luce.	610	11	47.3	+ 1.6	77	26†	29	9	37	3.10		0.63	1.10	0	8	15	2	14	nw.	Linton Melvin.
Detour.	Chippewa.	585	11	50.2	+ 2.5	80*	22	30*	1†	35*	10.22	+ 7.37	2.95	0	7	16*	9*	5*	s.	John Nolen.	
Eagle Harbor.	Keweenaw.	622	13	47.4	+ 1.7	83	31	30	16	34	2.82	- 0.49	0.70	0	9	10	11	10	e.	U. S. Weather Bureau.	
Escanaba.	Delta.	612	39	49.6	- 0.4	75	7	33	14	34	4.45	+ 1.13	1.57	0	15	7	13	11	s.	W. B. Hatfield.	
Ewen.	Ontonagon.	1,447	1	52.2	+ 2.9	80	26	26	13	44	3.73	+ 0.26	2.50	0	12	15	4	22	w.	Mrs. Lena Truedell.	
Grand Marais.	Alger.	610	11	46.8	+ 1.5	73	26	29	1	33	2.40	- 0.46	1.30	0	8	16	4	11	e.	T. A. Green.	
Green.	Ontonagon.	622	1	52.8		81	31	38	8†	35	1.62		1.00	0	3	13	2	16	...	U. S. Weather Bureau.	
Houghton.	Houghton.	668	11	48.6	- 0.6	84	31	31	13	42	3.40	+ 0.11	1.20	0	14	6	6	19	e.	D., S. & A. Ry.	
Humboldt.	Marquette.	1,536	15	51.6	+ 4.3	83	26	23	14	45	1.60	- 1.03	0.80	0	6	18	0	13	w.	Chapin Mining Co.	
Iron Mountain.	Dickinson.	1,111	11</																		

TABLE 1.—Climatological data for May, 1912. District No. 4—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing wind direction.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmetted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<i>Michigan—Lower Peninsula—Continued.</i>																				
Ann Arbor.....	Washtenaw.....	930	32	59.6	+ 2.0	84	23	32	13	33	3.97	+ 0.32	0.80	0.5	15	13	7	11	nw.	University of Michigan.
Arbela.....	Tuscola.....	725	16	55.9	- 1.0	84	23	32	13	35	10.90	+ 6.81	2.16	0	17	1	13	17	ne.	Wm. Atkin.
Battle Creek.....	Calhoun.....	822	28	60.2	+ 0.7	85	23†	38	13	36	3.69	+ 0.60	1.22	0	13	13	8	10	sw.	Elmer E. Sager.
Bay City.....	Bay.....	593	16	57.6	+ 0.3	92	24	35	1†	37	0	0	0	0	0	0	0	0	ne.	Pere Marquette R. R.
Benzonia.....	Benzie.....	832	15	54.8	+ 2.6	81	22	34	13†	34	5.70	+ 2.73	1.31	T.	13	6	15	10	sw.	Wallace Nutting.
Berlin.....	St. Clair.....	23	57.4	+ 2.1	84	23	33	13	33	5.45	+ 1.70	1.76	2.0	0	13	6	15	11	se.	R. O. Gould.
Big Rapids.....	Mecosta.....	906	16	56.8	+ 1.4	82	22†	32	1	36	8.88	+ 5.92	1.78	0	13	6	15	10	w.	Supt. Water Works.
Bloomingdale.....	Van Buren.....	8	59.5	.....	86	24	35	14	35	4.35	.....	2.29	0	12	16	8	7	sw.	John M. Haven.	
Cadillac.....	Wexford.....	1,293	3	55.2	.....	81	27	32	13	31	6.53	.....	1.98	0	11	13	11	7	ne.	Cadillac Water & Light Co.
Cassopolis.....	Cass.....	903	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Michigan Central R. R.	
Charlevoix.....	Charlevoix.....	610	34	53.1	+ 1.1	80	22	30	14	32	6.02	+ 3.36	1.31	0	8	13	6	12	w.	Pere Marquette R. R.
Charlotte.....	Eaton.....	8	58.8	.....	86	23	35	15	40	4.60	.....	0.55	0	12	11	10	10	n.	City of Charlotte.	
Cheboygan.....	Cheboygan.....	611	22	52.0	+ 1.4	80	26	30	2†	40	6.20	+ 3.18	1.25	0	9	5	20	6	e.	E. A. Bouchard.
Clinton.....	Lenawee.....	830	22	61.2	+ 3.1	87	23	33	13	40	3.29	- 0.77	0.65	0	10	15	8	8	sw.	David Woodward.
Coldwater.....	Branch.....	984	15	61.8	+ 2.9	87	23†	37	13	36	3.46	- 0.85	0.74	0	13	17	8	6	sw.	L. S. & M. S. R. R.
Concord.....	Jackson.....	7	59.7	.....	86	23	36	13	37	2.36	.....	0.38	0	10	11	14	5	sw.	W. N. Armstrong.	
Croton.....	Newaygo.....	685	4	57.2	.....	80	22†	35	14†	37	7.89	.....	2.34	0	10	5	15	11	e.	Gr. Rap. Musk. Power Co.
Detroit.....	Wayne.....	730	41	59.2	+ 1.3	84	23	32	13	32	2.96	- 0.31	1.04	1.5	15	8	15	8	e.	U. S. Weather Bureau.
Durand.....	Shiawassee.....	799	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. J. Tobin.	
East Tawas.....	Iosco.....	590	15	52.2	0	76	23	29	14†	28	10.72	+ 7.80	2.80	0	13	16	7	8	sw.	Detroit & Mackinaw Ry.
Eloise.....	Wayne.....	640	15	60.0	+ 2.7	87	23	32	13	34	3.66	+ 0.90	0.90	1.0	14	14	9	8	w.	John Gilmore.
Flint.....	Genesee.....	730	23	56.2	+ 0.3	86	23	33	13	33	6.78	+ 3.00	1.50	T.	14	11	12	12	n.	William L. Fisher.
Frankfort.....	Benzie.....	589	8	50.4	.....	72	3	36	13	25	4.28	.....	0	8	13	0	18	.....	Geo. Morency.	
Ganges.....	Allegan.....	665	3	56.6	.....	83	27	35	13	39	6.91	.....	1.54	0	16	15	8	sw.	H. H. Hutchins.	
Gaylord.....	Otsego.....	1,367	12	54.6	+ 3.3	83	23	27	14†	42	6.61	+ 3.80	1.68	0	10	11	5	sw.	Michigan Central R. R.	
Gladwin.....	Gladwin.....	794	16	54.1	- 0.8	85*	23	30	15	41	11.90	+ 8.54	5.00	0	17	17	2	9	s.	Geo. R. Smith.
Grand Haven.....	Ottawa.....	628	31	54.7	- 0.1	77	22	36	19	30	5.00	+ 1.66	1.60	0	15	12	5	11	se.	U. S. Weather Bureau.
Grand Rapids.....	Kent.....	707	23	58.8	- 0.2	87	23	38	19	31	4.91	+ 1.57	1.44	0	12	11	7	13	e.	Do.
Grape.....	Monroe.....	625	22	60.6	+ 2.7	88	23	32	13	38	3.04	- 0.56	0.64	1.0	9	9	17	5	w.	Joseph W. Morris.
Grass Lake.....	Jackson.....	989	6	57.8	.....	88	23	32	13†	36	2.28	.....	0.40	0	11	13	12	6	sw.	Menzo Conklin.
Grayling.....	Crawford.....	1,147	22	55.8	+ 1.7	84	23†	30	14†	39	6.72	+ 3.57	2.65	0	12	11	7	13	w.	S. N. Insley.
Harbor Beach.....	Huron.....	635	24	52.9	+ 1.1	85	23	24	4	39	8.10	+ 5.25	1.40	0	13	8	13	10	sw.	Pere Marquette R. R.
Harrison.....	Clare.....	1,159	19	56.2	+ 2.5	88	23	33	1	36	8.15	+ 5.06	2.08	0	11	16	5	10	se.	Do.
Harrisville.....	Alcona.....	616	28	50.8	+ 0.4	80	23	30	14	29	5.57	+ 5.32	1.92	0	17	9	8	14	sw.	Joseph W. Morris.
Hart.....	Oceana.....	698	20	57.4	+ 2.7	82	23†	31	14	37	8.72	+ 5.17	2.00	0	11	12	5	14	w.	Menzo Conklin.
Hayes.....	Huron.....	620	22	55.6	+ 1.0	81	22	32	1	41	8.51	+ 5.61	2.38	T.	14	7	18	6	sw.	S. N. Insley.
Highland.....	Oakland.....	830	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.	
Hillsdale.....	Hillsdale.....	1,150	15	59.5	+ 2.1	86	23	35	13	37	4.09	- 0.31	1.05	0	11	13	6	9	sw.	Pere Marquette R. R.
Holland.....	Ottawa.....	610	6	58.3	.....	86	27	36	19	37	4.90	.....	1.30	0	17	9	14	8	sw.	C. L. Herron.
Howell.....	Livingston.....	924	20	59.0	+ 2.5	84	23	33	13	39	3.42	+ 0.19	0.75	0.3	16	12	8	11	sw.	Frank Sharp.
Ivan.....	Kalkaska.....	23	54.4	+ 1.4	84	23	28	14	38	3.31	+ 2.48	1.57	0	12	7	16	5	sw.	O. L. Giddings.	
Jackson.....	Jackson.....	927	15	60.2	+ 0.8	85	23	33	13	38	4.71	+ 1.10	1.08	0	17	14	7	9	sw.	City of Jackson.
Jeddo.....	St. Clair.....	667	23	55.8	+ 1.1	83	23	33	13	34	6.20	+ 2.93	2.60	0	15	7	13	11	ne.	William Bice.
Kalamazoo.....	Kalamazoo.....	955	36	58.1	- 0.1	83	23	32	14	38	4.95	+ 0.83	0	0	13	10	8	w.	Kalamazoo Asylum.	
Lansing (Agr. College).....	Ingham.....	820	48	57.6	+ 0.5	85	23	37	13	35	6.57	+ 2.99	1.84	0	15	10	9	12	sw.	U. S. Weather Bureau.
Lansing (Capitol).....	.....	881	25	58.8	+ 1.5	86	23	36	12†	37	6.59	+ 2.89	1.51	0	14	7	8	16	sw.	State Board of Health.
Lapeer.....	Lapeer.....	827	13	57.3	+ 1.2	85*	23	32	12	37	5.28	+ 1.93	1.32	0	14	4	18	7	sw.	Michigan Home.
Ludington.....	Mason.....	586	14	53.4	+ 0.8	78	23	33	19	41	11.59	+ 9.02	3.48	0	10	16	7	sw.	Pere Marquette R. R.	
Luther.....	Lake.....	1,028	2	54.0	.....	82	23†	31	19	40	8.33	.....	2.11	0	17	11	9	11	e.	John W. Nicholson.
Mackinaw.....	Cheboygan.....	592	21	51.6	+ 2.5	77	27	35	19	24	2.63	- 0.39	0.72	0	9	15	8	8	sw.	G. R. & I. Ry.
Mancelona.....	Antrim.....	1,121	16	53.8	+ 1.2	82	23†	21	14	43	2.87	+ 0.80	1.06	0	6	18	6	7	s.	Do.
Manistee.....	Manistee.....	600	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Pere Marquette R. R.	
Marshall.....	Calhoun.....	896	0	56.7	.....	86	23	28	13	49	0	0	0	0	8d	7d	12	12	se.	E. B. Stuart.
Midland.....	Midland.....	604	13	56.8	- 1.5	81	6	35	1	39†	0.78	.....	0	0	10	11	8	12	sw.	Pere Marquette R. R.
Moraine.....	Lenawee.....	811	5	60.2	.....	85	23	33	13	37	2.77	.....	0.78	0	10	8	12	12	sw.	George J. Tripp.
Mount Clemens.....	Macomb.....	615	12	59.4	+ 3.6	86	23	34	13	36	3.87	+ 0.95	0.85	T.	14	13	2	16	sw.	Waterworks.
Mount Pleasant.....	Isabella.....	826	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Pere Marquette R. R.	
Muskegon.....	Muskegon.....	587	16	57.2	+ 1.5	80	22	38	13†	33	1.80	- 1.27	0.45	0	8	15	11	5	s.	G. R. & I. Ry.
Old Mission.....	Grand Traverse.....	858	18	53.1	- 0.1	81	22	32	14	36	5.29	+ 2.31	0.98	0	11	12	11	8	sw.	Fred W. Shaw.
Olivet.....	Eaton.....	934	22	58.2	+ 1.6	83	23	36	13	29	6.11	+ 2.02	1.18	0	18	11	14	6	sw.	Pere Marquette R. R.
Omer.....	Arenac.....	616	13	56.2	+ 3.5	87	24	30	1†	41	4.34	+ 1.51	1.72	0	9	18	0	13	w.	E. O. Ladd.
Onaway.....	Presque Isle.....	826	9	55.0	.....	80	11†	16	21	45	7.18	+ 4.76	1.97	0	16	9	15	7	w.	G. A. Knapp.
Owosso.....	Shiawassee.....	731	15	60.0	+ 0.7	88	23	36	13†	36	9.97	+ 6.97	2.24	0	17	7	19	5	w.	Detroit & Mackinaw Ry.
Petroskey.....	Emmet.....	600	22	52.6	+ 2.1	83	22	29	2	41	3.06	+ 0.19								

TABLE 1.—Climatological data for May, 1912. District No. 4—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing wind direction.	Observers.			
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unadjusted.	Number of rainy days.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.			
<b>Ohio—Continued.</b>																					
Conneaut.....	Ashtabula.....	675	2	59.6*	+ 2.6	87 <sup>b</sup>	23	35 <sup>b</sup>	13†	39 <sup>b</sup>	3.05	- 0.82	T.	12	12	7	12	sw.	E. L. Ransom.		
Findlay.....	Hancock.....	776	23	63.0	+ 1.8	91	23	33	13	42	1.86	- 1.90	T.	10	17	6	8	sw.	Dr. E. A. Moser.		
Fremont.....	Sandusky.....	628	10	62.8	+ 2.2	89	23	33	13	38	2.69	- 1.12	T.	13	16	6	9	sw.	E. Stanley Thomas.		
Hedges.....	Paulding.....	725	18	61.9	+ 1.9	89	27	32	13	42	2.59	- 0.44	1.04	0	8	19	8	w.	Charles Stutzman.		
Hillhouse.....	Lake.....	997	19	59.2	+ 2.3	85	23	31	13	41	2.59	- 1.78	0.53	T.	10	18	11	4	sw.	J. W. Doncaster.	
Hiram.....	Portage.....	1,260	32	60.9	+ 2.8	83	23	33	13	33	1.46	- 2.44	0.45	T.	8	13	14	4	w.	Prof. G. H. Colton.	
Hudson.....	Summit.....	1,153	51	61.6	+ 1.9	89	23	33	13	39	3.63	+ 0.46	0.87	T.	11	20	5	6	sw.	Dr. W. I. Chamberlain.	
Lima.....	Allen.....	875	13	62.4	+ 2.0	85	22†	33	13	33	2.62	- 0.94	0.79	T.	9	15	6	10	sw.	Miss Ollie De Long.	
Medina.....	Medina.....	944	24	61.3	+ 1.6	85	23	32	13	41	3.29	- 0.17	0.62	T.	8	21	3	7	s.	F. W. Clark.	
Montpelier.....	Williams.....	880	20	61.6	+ 1.6	87	23†	33	13	38	3.93	- 0.37	0.72	T.	11	15	10	6	w.	G. L. Laser.	
Napoleon.....	Henry.....	680	25	61.4	+ 1.4	85	23	33	13	35	2.93	- 0.54	0.85	0.5	11	19	4	8	w.	A. C. Senter.	
New Bremen.....	Auglaize.....	1,038	19	62.7	+ 1.2	86	23†	32	13	34	2.63	- 0.28	0.63	T.	7	8	7	6	nw.	Miss Lilian Grothaus.	
North Royalton.....	Cuyahoga.....	1,000	19	60.6	+ 2.1	84	23	33	13	32	2.96	- 0.97	0.90	0	9	16	10	9	sw.	W. S. Edgerton.	
Norwalk.....	Huron.....	719	26	62.9	+ 2.8	90	23	33	13	38	2.06	- 1.24	0.52	T.	12	7	15	9	w.	Giles R. Gregory.	
Oberlin.....	Lorain.....	855	37	61.5	+ 2.7	87	23	34	13	42	2.83	- 0.65	1.10	T.	9	19	8	4	s.	Prof. F. F. Jewett.	
Ottawa.....	Putnam.....	720	19	61.6	+ 0.6	88	23	32	13	37	2.11	- 1.25	0.72	T.	11	17	7	3	s.	Prof. J. T. Maidlow.	
Sandusky.....	Erie.....	629	35	60.7	+ 1.5	87	23	37	13	35	1.94	- 1.31	0.50	0	14	12	4	5	sw.	U. S. Weather Bureau.	
Tiffin.....	Seneca.....	775	30	62.9	+ 2.7	87	23	36	1	32	1.90	- 1.84	0.50	T.	10	16	7	8	sw.	Prof. T. H. Sonnedecker.	
Toledo.....	Lucas.....	679	41	61.0	+ 1.3	87	23	33	13	33	0.97	- 0.20	1.08	0.5	13	14	12	5	sw.	U. S. Weather Bureau.	
Upper Sandusky.....	Wyandot.....	854	29	63.8	+ 3.2	86	23	33	13	30	2.73	- 1.23	0.90	T.	9	11	15	5	sw.	Robert E. Tracht.	
Vickery.....	Sandusky.....	588	19	61.4	+ 1.8	89	23	33	13	41	2.74	- 0.77	0.50	0	13	13	10	8	sw.	John W. Barr.	
Wauseon.....	Fulton.....	780	40	60.8	+ 1.9	89	23	32	13	38	2.78	- 0.35	1.36	1.5	12	8	5	s.	Thomas Mikesell.		
Wickliffe.....	Lake.....	649	—	—	—	—	—	—	—	—	3.13	—	0.72	0	12	15	5	11	s.	C. M. Richardson.	
<b>Pennsylvania.</b>																					
Erie.....	Erie.....	658	39	58.5	+ 1.2	86	23	34	13	36	3.29	- 0.14	1.46	T.	14	8	14	9	w.	U. S. Weather Bureau.	
<b>New York.</b>																					
Adams Center.....	Jefferson.....	540	21	57.6	+ 3.6	84	23	34	14	36	9.27	+ 5.82	1.70	T.	18	9	12	10	s.	A. E. Cooley.	
Angelica.....	Allegany.....	1,340	29	57.1	+ 2.5	84	23	32	1	42	1.89	- 1.89	0.95	T.	8	5	14	12	w.	Charles P. Arnold.	
Appleton.....	Niagara.....	270	21	55.2	+ 0.7	86	28	32	1†	41	4.54	+ 1.38	1.55	T.	11	12	18	5	e.	H. A. van Wagoner.	
Auburn.....	Cayuga.....	715	43	57.7	+ 1.0	87	28	33	14	35	5.84	+ 2.37	1.25	0	12	18	8	5	s.	A. H. Underwood.	
Avon.....	Livingston.....	555	17	58.7	+ 2.2	85	23†	33	1	34	3.38	+ 0.74	1.17	0	6	12	7	12	sw.	W. G. Markham.	
Blue Mountain Lake.....	Hamilton.....	1,750	12	58.7	+ 3.2	85	23†	33	1	34	3.26	+ 3.70	1.87	0	17	5	11	w.	B. F. Merwin.		
Brockport.....	Monroe.....	537	16	57.8	+ 1.6	86	28	33	14	36	5.56	+ 2.57	1.83	0	16	6	17	8	sw.	W. H. Lennon.	
Buffalo.....	Erie.....	767	61	55.8	+ 1.3	80	22	35	13	31	5.50	+ 0.40	1.13	T.	14	4	15	12	sw.	U. S. Weather Bureau.	
Canton.....	St. Lawrence.....	448	18	54.8	- 1.4	84	28	31	1	33	6.33	+ 3.48	2.36	0	16	11	10	10	sw.	Do.	
Cape Vincent.....	Jefferson.....	246	7	54.5	—	81	11	37	14†	34	5.80	—	1.27	0	15	12	8	11	e.	J. Harry Grapotte.	
Carvers Falls.....	Washington.....	243	14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Washburne Francher, C. E. Miss Caroline Bishop.
Castile.....	Wyoming.....	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chazy.....	Clinton.....	151	12	56.1	+ 1.3	82	28	27	4	37	6.38	+ 3.40	1.48	1.0	14	11	10	10	n.	W. R. North.	
Dannemora.....	Clinton.....	1,490	29	55.5	+ 2.2	84	28	32	14†	32	5.16	+ 3.70	1.51	2.0	16	9	5	17	w.	Dr. W. N. Thayer.	
Elba.....	Genesee.....	500	13	56.2	+ 1.1	84	28	31	14	39	4.01	+ 0.96	1.47	T.	12	17	6	10	sw.	Joseph S. Wilford.	
Fayetteville.....	Onondaga.....	530	11	59.2	+ 0.9	85	28	30	1	36	4.94	+ 1.94	1.10	0	17	15	6	10	nw.	Dana H. Wells.	
Gabriels.....	Franklin.....	1,729	10	52.6	—	83	28	24	1	42	5.55	—	1.30	2.0	13	10	12	9	w.	Gabriel's Sanitarium.	
Harkness.....	Clinton.....	622	10	55.6	+ 0.0	84	28	37	5	36	4.81	+ 2.40	1.21	2.0	17	18	5	8	w.	J. W. Harkness.	
Hunt.....	Livingston.....	1,321	21	59.5	+ 2.9	87	23	30	1	36	2.08	- 1.57	1.31	T.	5	10	13	8	sw.	W. S. Barager.	
Ithaca.....	Tompkins.....	928	34	58.0	+ 1.0	85	28	34	1	36	3.58	+ 0.15	1.07	T.	16	16	10	13	se.	U. S. Weather Bureau.	
Keene Valley.....	Essex.....	1,000	14	54.5	+ 1.3	88	28	25	1†	43	4.17	- 0.70	1.00	0	9	14	7	10	sw.	E. R. Wells.	
King Ferry.....	Cayuga.....	—	—	—	—	—	—	—	—	—	2.23	—	0.70	0	10	7	10	10	se.	Lucius A. Goodyear.	
Lake George.....	Warren.....	350	15	55.4	- 0.4	85	26	33	1	42	6.20	+ 3.18	1.62	0	11	7	16	8	w.	Charles Forsell.	
Lake Placid Club.....	Essex.....	1,864	4	46.0	—	79	28	23	1	43	6.82	—	1.22	2.50	20	13	8	10	nw.	Henry van Hoevenberg.	
Lockport.....	Niagara.....	520	25	56.8	+ 0.8	83	23†	33	14†	38	4.90	+ 2.06	2.00	0	13	13	9	9	w.	Robert N. Clark.	
Lovville.....	Lewis.....	900	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Charles J. Rice.
Moira.....	Franklin.....	200	12	55.4	+ 0.4	85	28	30	1†	40	8.07	+ 4.94	2.35	0	15	8	13	10	w.	C. E. McBride.	
Nehasane.....	Hamilton.....	1,750	4	52.2	—	82	28	23	1†	48	7.23	—	1.44	1.0	21	12	11	8	nw.	L. W. Brown.	
North Lake.....	Herkimer.....	1,822	11	56.4	+ 0.2	80	28	30	5	33	4.52	+ 1.65	1.03	T.	2.00	1.0	12	5	12	sw.	John F. Redmond.
Ogdensburg.....	St. Lawrence.....	175	28	56.4	+ 0.2	80	28	25	1	45	6.88	—	1.32	0	19	12	4	15	s.	State Hospital.	
Old Forge.....	Herkimer.....	1,733	4	53.0	—	82	28	25	1	45	7.25	+ 4.09	2.00	T.	14	8	6	17	s.	Mrs. S. W. Nelson.	
Oswego.....	Oneida.....	335	42	54.6	- 0.1	82	28	36	14	32	7.35	+ 4.53	2.36	T.	14	8	6	17	s.	U. S. Weather Bureau.	
Otto.....	Cattaraugus.....	1,410	8	58.3	—	81	24	30	13	33	2.17	—	0.48	0	12	13	9	6	sw.	William J. Winke.	
Palermo.....	Oswego.....	400	53	—	—	—	—	—	—	—	4.56	+ 1.97	1.65	0	10	16	9	6	sw.	E. B. Bartlett.	
Perry City.....	Schuyler.....	1,038	32	56.4	+ 1.1	87	28	25	1	45	2.55	- 0.69	1.14	0	14	8	10	13	sw.	W. H. Jeffers.	
Philadelphia.....	Jefferson.....	485	6	56.9	—	83	24†	31	4	37	7.79	—	2.88	0	17	7	15	9	w.	E. D. Babcock.	
Potsdam.....	St. Lawrence.....	300	36	56.8	+ 1.7	84	29	31	1	35	7.25	+ 4.09	2.00	0	21	8					

TABLE 2.—*Daily precipitation for May, 1912. District No. 4, Lake Region.*

TABLE 2.—*Daily precipitation for May, 1912. District No. 4—Continued.*

TABLE 2.—*Daily precipitation for May, 1912. District No. 4—Continued.*

Stations.	Watershed.	Day of month.																														Total.			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
<i>Ohio—Continued.</i>																																			
Hillhouse.....	Lake Erie.....		.05	.10																															2.59
Hiram.....	do.....	T.	.01																																1.46
Hudson.....		T.																																	3.63
Lima    .....	Maumee.....			T.	.34	.10																												2.62	
Medina.....	Lake Erie.....	T.	.24	.14	.15																													3.29	
Montpelier.....	Maumee.....			T.	.18																													3.92	
Napoleon.....	do.....	T.	.35	T.	.20																													2.93	
New Bremen.....	do.....																																		2.63
North Royalton.....	Lake Erie.....		.10	.80																														2.96	
Norwalk.....	do.....	T.																																	2.06
Oberlin.....	do.....	T.																																	2.83
Ottawa.....	Maumee.....	T.	.18	.05	T.	.17																												2.11	
Sandusky.....	Lake Erie.....	T.	.21	.02	.03	.01																											1.94		
Tiffin.....	Sandusky.....	T.																																1.90	
Toledo.....	Maumee.....		.06		.10	.05																											3.07		
Upper Sandusky.....	Sandusky.....																																	2.73	
Vickery.....	Lake Erie.....	.01	.46		.11																												2.74		
Waauseon.....	Maumee.....	T.	.16		.04	.13																											3.78		
Wickliffe    .....	Lake Erie.....	.53	.05		T.																													3.13	
<i>Pennsylvania.</i>																																			
Erie.....	Lake Erie.....		.41	.10		T.	T.																											3.29	
<i>New York.</i>																																			
Adams Center.....	L. Ontario.....	.04																																	9.27
Angelica.....	Genesee.....		.47																																1.89
Appleton.....	L. Ontario.....		.48		.05	.06																												4.54	
Auburn.....	Oswego.....		T.	.32	T.	.12																												5.84	
Avon.....	Genesee.....		T.	.117																														3.38	
Blue Mt'n Lake.....	Raquette.....		.67	.47																														8.26	
Brockport.....	L. Ontario.....		.01	.05																														5.56	
Buffalo.....	Lake Erie.....	T.	.16	T.	.10																													3.50	
Canton.....	Grass.....	T.	.27	T.	.11	.06																											6.33		
Cape Vincent    .....	St. Lawrence.....		.26																															5.80	
Carvers Falls.....	L. Ch'plain.....																																		
Castile.....	Genesee.....																																		
Chazy.....	L. Ch'plain.....		.60																																6.38
Dannemora.....	do.....	T.	.19																																5.16
Elba.....	L. Ontario.....		.08																																4.01
Fayetteville.....	Oswego.....		.02	.06	.64	.02	.37																										4.94		
Gabriels.....	St. Regis.....	T.	.30	T.	.15																													20.130	
Harkness.....	L. Ch'plain.....	.03																																16.1.21	
Hunt.....	Genesee.....		.04																															2.09	
Ithaca.....	Oswego.....		.04	.05	.11	.18	.10	.01																								3.58			
Keene Valley.....	Ausable.....		.04	.09																														3.17	
King Ferry.....	Oswego.....		.30		.15																												2.23		
Lake George.....	L. Ch'plain.....		.26																															6.20	
Lake Placid Club.....	A'ble, W. Br.....	.05																																6.82	
Lockport.....	L. Ontario.....		.10																															4.90	
Lowville.....	Black.....																																		
Moir.....	St. Lawrence.....		.38	T.	.10																													8.07	
Nehasane.....	Black.....	.01	.44	.08																														7.23	
North Lake.....	do.....		.44																																7.74
Ogdensburg.....	St. Lawrence.....		.54		T.	.05																											4.52		
Old Forge.....	Black.....		.05	.09	.15																												6.88		
Oswego.....	L. Ontario.....		.03	.37																													7.38		
Otto.....	Lake Erie.....		.20																															2.17	
Palermo.....	L. Ontario.....		.15																															4.56	
Perry City.....	Oswego.....		.18	.09	.11	.04																											2.79		
Philadelphia.....	St. Lawrence.....	T.																																7.25	
Potsdam.....	Raquette.....	.01																																5.69	
Rochester.....	do.....	.04																																	

TABLE 3.—Maximum and minimum temperatures at selected stations, May, 1912. District No. 4, Lake Region.

Date.	Duluth, Minn.		Wisconsin.				Chicago, Ill.		Fort Wayne, Ind.		Upper Michigan.						Lower Michigan.												
			Florence.	Green Bay.	Milwaukee.						Escanaba.	Ewen.	Houghton.	Marquette.	Sault Ste. Marie.		Alpena.	Battle Creek.	Cadillac.										
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.					
1....	42	37	51	40	60	43	65	43	66	44	66	44	45	40	57	33	47	36	53	35	52	34	48	33	58	40	57	38	
2....	43	35	61	43	49	41	56	42	68	54	73	55	57	40	75	38	50	35	58	38	65	41	56	43	75	40	68	46	
3....	52	37	59	47	65	46	64	67	48	76	54	55	46	68	50	48	41	53	39	63	41	56	39	72	50	70	44		
4....	42	35	50	42	59	40	60	46	66	52	80	49	47	42	62	45	44	36	43	36	50	44	52	46	75	58	71	47	
5....	37	33	47	39	52	44	56	44	80	58	78	51	48	42	50	42	39	36	41	35	52	42	48	43	56	50	61	45	
6....	41	34	72	38	77	45	77	41	82	43	80	56	59	40	68	45	52	36	71	36	71	44	58	42	80	53	75	46	
7....	54	33	72	52	74	51	76	54	79	61	79	57	75	45	64	43	58	41	70	39	70	38	65	46	80	50	71	51	
8....	56	43	58	40	62	45	69	50	71	51	70	52	58	39	60	38	50	36	55	40	58	38	66	42	67	50	65	44	
9....	71	40	71	37	70	42	65	48	62	49	64	43	56	39	68	33	70	38	59	42	51	38	63	42	64	41	60	40	
10....	74	46	79	43	76	53	66	51	75	54	75	44	63	43	77	52	76	44	82	56	73	36	75	41	75	40	73	45	
11....	50	39	69	40	60	42	52	40	63	43	74	55	56	40	70	38	46	39	57	37	55	41	57	44	71	55	65	46	
12....	47	37	49	35	51	40	46	38	43	39	62	37	43	37	65	33	46	40	35	38	44	48	37	44	35	67	41	49	38
13....	45	32	50	28	53	35	48	38	49	40	56	34	38	33	45	26	46	31	42	33	41	33	50	34	54	38	50	32	
14....	50	36	55	28	53	34	55	39	54	43	59	49	43	33	55	35	53	32	64	35	53	32	54	32	55	39	52	35	
15....	47	37	51	39	45	42	49	42	58	43	45	51	40	50	35	52	36	47	38	57	33	48	37	53	41	48	39		
16....	53	34	58	32	50	41	49	41	49	44	58	47	55	40	60	28	60	36	49	39	56	43	47	42	58	47	53	40	
17....	71	45	72	30	69	39	68	44	63	47	63	44	62	40	70	28	67	33	64	46	57	36	68	43	64	45	64	38	
18....	54	43	66	42	72	46	76	41	77	48	72	47	70	36	65	30	52	37	66	36	59	37	72	41	74	47	67	47	
19....	44	38	52	30	46	38	45	39	66	43	71	50	43	34	55	40	50	39	51	34	45	40	69	39	51	34	40		
20....	59	37	65	36	49	39	53	42	76	45	82	54	54	38	65	33	61	39	51	38	58	38	42	37	75	49	50		
21....	51	39	67	35	56	45	50	45	63	48	83	62	62	41	68	31	61	37	57	37	64	35	53	38	71	55	54	44	
22....	44	38	68	43	79	49	86	43	87	63	84	63	60	46	65	45	51	40	58	41	53	45	56	43	65	59	77	49	
23....	74	40	83	56	81	63	87	62	88	69	86	64	66	48	78	50	72	47	66	42	75	48	71	53	65	65	78	64	
24....	70	47	73	49	71	56	72	59	73	60	76	59	67	49	70	50	67	47	64	48	63	53	69	52	81	63	76	57	
25....	72	50	78	42	75	52	70	57	68	61	77	56	65	48	76	42	76	48	65	52	74	39	72	49	77	41	74	45	
26....	71	52	82	53	80	57	69	55	83	64	81	58	68	54	80	61	84	51	80	55	77	45	82	49	82	50	80	54	
27....	62	42	74	57	81	59	83	56	84	66	86	56	65	50	78	61	71	48	78	55	71	57	55	62	51	62	52		
28....	49	39	70	41	71	46	73	43	76	49	74	62	63	40	68	48	54	40	60	37	61	42	76	47	79	62	78	53	
29....	45	38	66	33	58	41	51	41	50	43	62	50	59	37	62	28	54	36	44	36	62	36	60	43	65	50	64	43	
30....	53	37	77	33	72	44	62	48	60	50	72	48	59	37	77	33	65	37	55	36	65	37	70	43	72	45	70	39	
31....	67	43	79	48	77	54	71	53	79	56	79	52	59	51	78	47	84	42	83	52	76	39	67	46	78	47	.77	47	
Mns..	54.5	39.2	65.3	40.4	64.3	45.7	63.5	46.2	68.7	51.1	72.9	51.7	57.6	41.5	66.1	40.2	58.3	39.0	59.3	40.6	60.4	39.4	60.0	42.6	71.6	48.3	65.5	44.9	

Date.	Lower Michigan.				Ohio.				Erie, Pa.				New York.				Vermont.										
	Detroit.		Muskegon.		Saginaw, West Side.		Cleveland.		Lima.		Sandusky.		Toledo.		Buffalo.		Canton.		Rochester.		Syracuse.		Burling- ton.	Northfield.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.			
1....	56	41	57	42	56	36	66	43	64	41	65	43	62	42	59	39	65	40	57	40	62	39	57	37	58	28	
2....	68	49	74	47	68	46	64	53	76	47	63	50	69	51	63	43	58	39	63	42	61	41	59	45	53	33	
3....	65	45	74	50	74	43	64	52	75	55	57	48	65	49	59	46	66	46	61	33	64	45	62	42	58	33	
4....	68	49	77	52	76	46	73	50	81	50	57	47	61	49	66	45	67	46	59	32	62	44	63	33	61	26	
5....	69	50	72	50	61	50	74	54	78	57	67	47	72	48	67	45	65	49	63	33	61	47	64	34	64	26	
6....	78	52	73	48	82	48	77	64	82	60	82	64	80	53	63	57	65	47	60	46	70	55	50	54	45	48	42
7....	77	60	66	49	79	54	74	65	83	57	75	60	78	59	71	58	68	58	79	46	77	59	74	50	71	43	
8....	68	52	63	47	67	50	64	54	72	55	70	54	71	54	66	53	73	55	74	57	67	56	70	52	59	49	
9....	65	43	68	43	68	44	58	45	63	43	66	46	65	44	54	44	64	40	63	37	66	47	60	50	60	46	
10....	72	47	73	41	78	42	65	50	72	39	67	47	74	50	64	45	57	42	67	46	70	45	64	47	65	46	
11....	68	54	69	55	69	55	65	56	70	55	70	55	71	53	75	57	79	51	80	51	83	50					